# ATEX/IECEx & Class1 Division1 Safety Instructions

## iCAM501U

**(Date markings July 18th 2013 onward)**

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

**Country of Origin: United Kingdom**

*Document Number 405430 Revision 1.0 - Dated 28th May 2014 Part number A25-0125*

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**How to Operate the Camera**
For instructions on how to operate the camera, please see the iCAM501U Quick Start Guide which was included. Copies of this and the full iCAM501U manual are available for download from the Extronics website – www.extronics.com

**Warranty**
For full details of the Extronics warranty policy please go to the Company section of the website and download Terms and Conditions.

# 1 Safety Instructions

## 1.1 Storage of this Manual

Keep this user manual safe and in the vicinity of the device. All persons required to work with the device should be advised on where this manual is stored.

## 1.2 Special Conditions for Safe Use

### 1.2.1 ATEX / IECEx

(Taken from ITS09ATEX2868X Issue 4 (Amended March 2013) Section 17 and IECExITS09.0027X Issue 4)

The conditions of safe use relating to this product:

For Group II applications only, the user shall not carry more than a maximum of two spare approved AA cells into the hazardous area. Precautions shall be taken to prevent short circuiting of un-protected battery terminals. Discharged cells shall be removed from the hazardous area.

T4: Duracell MN 1500
T3: Duracell Procell PC 1500, Energizer E91, Panasonic LR6XWA

For Group 1 applications, the changing of the batteries in the hazardous area and the transportation of spare batteries into the hazardous area is not permitted.

Duracell MN 1500 is the only type of battery permitted for Group 1 applications

The USB port shall only be connected in the non-hazardous area

If the camera is damaged in any way, it shall be removed from the hazardous area.

Conditions of manufacture relating to the product / routine test: None

### 1.2.2 Class 1 Division 1

(Taken from FM approvals certificate 3042108 amended July 12th 2013)

Special conditions for use;

1. Must be used with Battery specified in the Operations Manual 331684
2. Temperature code is T4, T1=-20°C to 55°C with Duracell Plus or Procell MN1500 batteries, or T3C, Ta=-20°C to 50°C with Duracell Procell PC1500 or Energizer E91 batteries.

## 1.3 List of Notes

The notes supplied in this chapter provide information on the following.

- Danger! / Warning!
  - Possible hazard to life or health.
- Caution
  - Possible damage to property.
- Important
  - Possible damage to enclosure, device or associated equipment.
- Information
  - Notes on the optimum use of the device

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|---|---|
| **Warning!** | **This manual applies ONLY to iCAM501U units marked with a date code AFTER 18th July 2013.** |

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|---|---|
| **Warning!** | **For ATEX/IECEx GROUP II applications, ONLY Duracell Plus MN1500, Duracell Procell MN1500, Duracell Procell PC1500, Energizer E91 or Panasonic LR6XWA cells may be used with the iCAM501U (see Table 1).** |

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|---|---|
| **Warning!** | **For ATEX/IECEx GROUP I applications, ONLY Duracell Plus MN1500 or Duracell Procell MN1500 cells may be used with the iCAM501U (see Table 1).** |

| | |
|---|---|
| **Warning!** | **For Class 1 Division I applications, ONLY Duracell Plus MN1500, Duracell Procell MN1500, Duracell Procell PC1500 or Energizer E91 may be used with the iCAM501U (see Table 1).** |

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|---|---|
| **Warning!** | **For ATEX/IECEx GROUP II and Class 1 Division 1 applications ONLY, the user shall not carry more than a maximum of 2 spares of the approved cells listed above into the hazardous area. Precautions shall be taken to prevent short circuiting of un-protected cell terminals. Discharged cells shall be removed from the hazardous area.** |

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| **Warning!** | **For ATEX/IECEx GROUP I applications, the changing of cells in the hazardous area or the transportation of spare cells into the hazardous area is NOT PERMITTED.** |

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|---|---|
| **Warning!** | **For ATEX/IECEx applications, NOTE THE DIFFERENT TEMPERATURE CLASSSIFICATION of T3 at 60°C when Duracell Procell PC1500, Energizer E91 or Panasonic LR6XWA cells are used (see Table 1).** |

| | |
|---|---|
| **Warning!** | **For Class1 Division 1 applications NOTE THE DIFFERENT TEMPERATURE CLASSIFICATION of T4 at 55°C when Duracell MN1500/ Duracell Procell MN1500 cells are used (see Table 1).** |

| | |
|---|---|
| **Warning!** | **For Class1 Division 1 applications NOTE THE DIFFERENT TEMPERATURE CLASSIFICATION of T3C at 50°C when Duracell PC1500/Energizer E91 are used (see Table 1).** |

| | |
|---|---|
| **Warning!** | **The user shall NOT mix different cells in ANY application** |

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|---|---|
| **Warning!** | **For ATEX/IECEx GROUP II applications, note that the rated ambient temperature range of the equipment is from -20°C to 60°C.** |

| | |
|---|---|
| **Warning!** | **For ATEX/IECEx GROUP I applications, note that the rated ambient temperature range of the equipment is from 0°C to 60°C.** |

| | |
|---|---|
| **Warning!** | **<u>For Class 1 Division 1 applications</u> the rated ambient temperature range of the equipment is from -20°C to 55°C/50°C dependent on the cells used (see Table 1).** |

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|---|---|
| **Warning!** | **Any connection to the iCAM501U USB port must NOT be made in a hazardous area.** |

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|---|---|
| **Warning!** | **If any damage to the iCAM501U is found which may invalidate the required safety minimum IP rating (IP54 for group I applications), (IP20 for group II and class 1 division 1 applications), the iCAM501U shall be removed from the hazardous area.** |

| | |
|---|---|
| **Important** | **Any repairs or replacement of parts MUST be performed by the manufacturer or its nominated sub contractor or agent.** |

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|---|---|
| **Important** | **The iCAM501U contains no user serviceable parts. The main part of the enclosure must not be opened under any circumstances.** |

| Application | Duracell Plus MN1500 | Duracell Procell MN1500 | Duracell Procell PC1500 | Energizer E91 | Panasonic LR6XWA |
|---|---|---|---|---|---|
| **ATEX/IECEx GROUP II** | OK, T4 at 60°C | OK, T4 at 60°C | OK, <u>T3</u> at 60°C | OK, <u>T3</u> at 60°C | OK, <u>T3</u> at 60°C |
| **ATEX/IECEx GROUP I** | OK, T4 at 60°C | OK, T4 at 60°C | **CANNOT BE USED** | **CANNOT BE USED** | **CANNOT BE USED** |
| **CLASS 1 DIVISION 1** | OK, T4 at 55°C | OK, T4 at 55°C | OK, T3C at 50°C | OK, T3C at 50°C | **CANNOT BE USED** |

Table 1 iCAM501U cell usage table

# 2 User guide

## 2.1 Changing/installing the cells

To change or install the cells in the iCAM501U turn the screw as indicated below to remove the cover.

***Use a coin to turn the screw anti-clockwise, the lid should then pop up.***

***To close it again, turn the coin clockwise, the screw should click into place once correctly seated.***

Install the cells in the correct orientation (indicated on the enclosure) and close the lid again.

# 3 Structure and Function

## 3.1 Intended Purpose Usage

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| **Important** | **Before setting the unit to work, read the technical documentation carefully.** |

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|---|---|
| **Important** | **The latest version of the technical documentation or the corresponding technical supplements is valid in each case.** |

The iCAM501U is built using modern components and is extremely reliable in operation; however it must only be used for its intended purpose. Please note that the intended purpose also includes compliance with the instructions issued by the manufacturer for installation, setting up and service.

Any other use is regarded as conflicting with the intended purpose. The manufacturer is not liable for any subsequent damage resulting from such inadmissible use. The user bears the sole risk in such cases.

## 3.2 Transportation and Storage

All iCAM501U devices must be so transported and stored that they are not subjected to any excessive mechanical stresses.

## 3.3 Authorized Persons

Only persons trained for the purpose are authorized to handle the iCAM501U; they must be familiar with the unit and must be aware of the regulation and provisions required for explosion protection as well as the relevant accident prevention regulations.

## 3.4 Cleaning and Maintenance

The iCAM501U and all its components require no maintenance. All work on the iCAM501U by personnel who are not expressly qualified for such activities will cause the Ex approval and the guarantee to become void.

## 3.5 Safety Precautions

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|---|---|
| **Important** | **For the installation, maintenance and cleaning of the units, it is absolutely necessary to observe the applicable regulations and provisions concerned with explosion protection (EN 60079-0, EN 60079-14) as well as the Accident Prevention Regulations.** |

## 3.6 Cleaning and Maintenance Intervals

The cleaning intervals depend on the environment where the system is installed.

## 3.7 Aggressive substances and environments

The iCAM501U is not designed to come into contact with aggressive substances or environments, please be aware that additional protection may be required.

## 3.8 Exposure to external stresses

The iCAM501U is not designed to be subjected to excessive stresses e.g. vibration, heat, impact. Additional protection is required to protect against these external stresses. The iCAM501U will require additional protection if it is used in a location where it may be subjected to damage.

The iCAM501U may be fitted with the optional antistatic rubber boot accessory supplied by Extronics. However, this does not guarantee any additional impact resistance, and due care must still be taken to avoid damage to the unit, and to inspect it before taking into a hazardous area.

# 4 Technical Data

| | |
|---|---|
| **Certification Number** | ITS09ATEX26868X, IECEx ITS 09.0027X, FM 3042108/3042108C |
| **ATEX Certification** | II 1 G Ex ia IIB T4/T3 Ga, II 2 G Ex ia IIC T4 Gb, -20°C ≤Ta≤ +60°C<br>I M1 Ex ia I Ma 0°C ≤Ta≤ +60°C |
| **IECEx Certification** | II 1 G Ex ia IIB T4/T3 Ga, II 2 G Ex ia IIC T4 Gb, -20°C ≤Ta≤ +60°C<br>Ex ia I Ma 0°C ≤Ta≤ +60°C |
| **FM Certification** | Intrinsically Safe for Class 1, Division 1, Groups A,B,C,D T4/T3C -20°C≤Ta≤55/50°C (USA and Canada) |
| **Compliance** | EMC: EN 55022 1998 class B, EN 55024 1999<br>LV: EN 60950 2002<br>FCC: FCC: Class A device, compliance through verification route |
| **Dimensions** | 132mm x 32mm x 22mm (5.20” x 1.26” x 0.87”) |
| **IP Rating** | IP65 |
| **Operating Temperature** | Group II -20ºC to +60ºC / Group I 0°C to +60°C |
| **Weight** | Approx 200g including batteries |
| **Housing** | Injection moulded anti static plastic housing |
| **Relative humidity** | 95% RH non condensing |
| **Power** | 2 x Alkaline AA batteries, refer to ATEX/FM Certificates for details on range of approved batteries. Batteries may not be carried or changed in Group I hazardous areas. |
| **Memory** | On board 1Gbyte NAND Flash (holds approx 5,000 JPEG images without any audio recording and additional 960Kbytes per min for audio) |
| **Image** | 3.1 Mega-Pixel (2048 x 1536 resolution) |
| **Lens** | Fixed focus 1/4” format lens in plastic holder |
| **Focal Distance** | 30 cm to infinity |
| **View Finder** | Two element optical view finder |
| **Power Modes** | Operate and auto power-down (after 3 mins) |
| **Battery Life** | Up to 800 shots without flash and up to 150 shots with flash taken one after the other. 310 shots as per the CIPA DC-002 standard (mixed mode shots with and without flash)<br>Note it is very difficult to be precise about exact numbers as there are many factors that can influence this such as the ambient temperature, how long the camera is powered up, number of voice recordings made and the number and length of time it is connected to a PC for transferring picture and voice data. |
| **Connectivity** | USB 1.1 via mini-USB socket for use in the safe area only. Certified for direct connection to a PC without requiring an external protection barrier |
| **OS Support** | PTP imaging device in Windows XP/Vista/7 and most versions of Linux.<br>USB firmware upgrade utility for Windows XP/Vista/7 only. |
| **Flash** | 4 LED flash giving 131 lux.seconds of energy at 67ms exposure |
| **Audio recording format** | wav |
| **Image format** | jpeg |
| **Time and Date** | Time and date stamping of stored images and filenames<br>Time and date set via Picture Transfer Protocol (PTP) automatically |

# 5 EC Declaration of Conformity

**EC Declaration of Conformity**

**Extronics Ltd, 1 Dalton Way, Midpoint 18, Middlewich, Cheshire CW10 0HU, UK**

Equipment Type:

**iCAM501U and iCAM502**

**Directive 94/9/EC** Equipment and protective systems intended for use in potentially explosive atmospheres (ATEX)

Provisions of the directive fulfilled by the equipment:

**⟨Ex⟩ II 1 G Ex ia IIB T4/T3 Ga -20°C ≤ Ta ≤ 60°C**
**⟨Ex⟩ II 2 G Ex ia IIC T4/T3 Gb -20°C ≤ Ta ≤ 60°C**
**⟨Ex⟩ I M1 Ex ia I Ma 0°C ≤ Ta ≤ 60°C**

Notified Body for EC-Type Examination:

**Intertek, 0359, Leatherhead, UK**

EC-Type Examination Certificates:

**ITS 09ATEX 26868X Issue 5 Dated 14th April 2014**

Notified Body for Production:

**SIRA, 0518, Chester UK**

Harmonised Standards used:

| | |
|---|---|
| **EN 60079-0:2009** | Electrical apparatus for potentially explosive gas atmospheres – General requirements |
| **EN 60079-11:2007** | Electrical apparatus for potentially explosive gas atmospheres – Equipment protection by intrinsic safety 'i' |
| **EN 60079-26:2007** | Electrical apparatus for potentially explosive gas atmospheres – Equipment with equipment protection level (EPL) Ga |
| **EN 50303:2000** | Group I, Category M1 equipment intended to remain functional in atmospheres endangered by firedamp and/or coal dust |

Other Standards and Specifications used:

**None**

405427-1.0

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EXTRONICS

Wireless Vision Engineering Tracking

**Directive 2004/108/EC** Electromagnetic Compatibility (EMC)

Harmonised Standards used:

| | |
|---|---|
| EN55022:2006 (+A1:2007) | Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement |
| EN55024:1998 (+A2:2003) | Information technology equipment - Immunity characteristics - Limits and methods of measurement |

**Directive 2011/65/EU** Restriction of the use of certain hazardous substances (RoHS)

Compliant

On behalf of Extronics Ltd, I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives.

Signed

Andy Robinson
Senior Development Engineer
Date: 28/05/2014

405427-1.0

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# 6 FM Class 1 Division 1 USA Certificate of Compliance

FM Approvals
1151 Boston Providence Turnpike
P.O. Box 9102 Norwood, MA 02062 USA
T: 781 762 4300 F: 781-762-9375 www.fmapprovals.com

## CERTIFICATE OF COMPLIANCE

HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT

This certificate is issued for the following equipment:

***iCAM501U Digital Camera***
IS / I / 1 / ABCD - 334417

*Special Condition for use;*
1. *Must be used with Battery specified in the Operations Manual 331684.*
2. *Temperature code is T4, Ta=-20°C to 55°C with Duracell Plus or Procell MN1500 batteries or T3C, Ta=-20°C to 50°C with Duracell Procell PC1500 or Energizer E91 batteries.*

***iCAM502 Digital Camera***
IS / I / 1 / ABCD – 334416

*Special Condition for use;*
1. *Must be used with Battery specified in the Operations Manual 331684.*
2. *Temperature code is T4, Ta=-20°C to 55°C with Duracell Plus or Procell MN1500 batteries or T3C, Ta=-20°C to 50°C with Duracell Procell PC1500 or Energizer E91 batteries.*

Equipment Ratings:

Intrinsically Safe for Class I, Division 1, Groups A, B, C, and D hazardous (classified) locations.

FM Approved for:

Extronics Ltd
Cheshire, UK

To verify the availability of the Approved product, please refer to www.approvalguide.com

This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

| | |
|---|---|
| Class 3600 | 2011 |
| Class 3610 | 2010 |
| Class 3810 | 2005 |

Original Project ID: 3042108 Approval Granted: December 7, 2011

Subsequent Revision Reports / Date Approval Amended

| Report Number | Date | Report Number | Date |
|---|---|---|---|
| 3048452 | July 12, 2013 | | |

FM Approvals LLC

Robert L. Martell Jr.
Assistant Vice President

July 12, 2013
Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

# 7 FM Class 1 Division 1 Canadian Certificate of Compliance

FM Approvals
1151 Boston Providence Turnpike
P.O. Box 9102 Norwood, MA 02062 USA
T: 781 762 4300 F: 781-762-9375 www.fmapprovals.com

## CERTIFICATE OF COMPLIANCE

HAZARDOUS LOCATION ELECTRICAL EQUIPMENT
PER CANADIAN REQUIREMENTS

This certificate is issued for the following equipment:

***iCAM501U Digital Camera***
IS / I / 1 / ABCD - 334417

*Special Condition for use;*
1. *Must be used with Battery specified in the Operations Manual 331684.*
2. *Temperature code is T4, Ta=-20°C to 55°C with Duracell Plus or Procell MN1500 batteries or T3C, Ta=-20°C to 50°C with Duracell Procell PC1500 or Energizer E91 batteries.*

***iCAM502 Digital Camera***
IS / I / 1 / ABCD – 334416

*Special Condition for use;*
1. *Must be used with Battery specified in the Operations Manual 331684.*
2. *Temperature code is T4, Ta=-20°C to 55°C with Duracell Plus or Procell MN1500 batteries or T3C, Ta=-20°C to 50°C with Duracell Procell PC1500 or Energizer E91 batteries.*

Equipment Ratings:

Intrinsically Safe for Class I, Division 1, Groups A, B, C, and D hazardous locations.

FM Approved for:

Extronics Ltd
Cheshire, UK

To verify the availability of the Approved product, please refer to www.approvalguide.com

This certifies that the equipment described has been found to comply with the following Approval Standards and other documents:

| | |
|---|---|
| C22.2 No. 157 | 2006 |
| CSA C22.2 No. 1010.1 | 2004 |

Original Project ID: 3042108C Approval Granted: December 7, 2011

Subsequent Revision Reports / Date Approval Amended

| Report Number | Date | Report Number | Date |
|---|---|---|---|
| 3048452 | July 12, 2013 | | |

FM Approvals LLC

Robert L. Martell Jr.
Assistant Vice President

July 12, 2013
Date

To verify the availability of the Approved product, please refer to www.approvalguide.com